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Use of Short-term General Hospitals by Patients with Psychiatric Diagnoses

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Background

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Additional information on the Hospital Studies Program and the Hospital Cost and Utilization Project is available from the National Center for Health Services Research and Health Care Technology Assessment, 3-50 Park Building, Rockville, MD 20857; 301/443-5706.

Copies of the Hospital Studies Program publications are available from the NCHSR Publications and Information Branch, 1-46 Park Building, Rockville, MD 20857; 301/443-4100.

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HCUP Research Notes are derived from research conducted by members of the Hospital Cost and Utilization Project (HCUP), a component of the Hospital Studies Program, Division of Intramural Research, National Center for Health Services Research and Health Care Technology Assessment. This series provides information from HCUP research to administrators, policymakers, health care professionals, and researchers on important issues related to hospitals.

Overview

Goals of the Hospital Study Program are to help understand how hospitals provide health care services and to determine patterns of hospital use and costs. HCUP is specifically designed to use national data to provide information and analyses on research and policy questions pertaining to the performance of the hospital industry. Issues already addressed or to be addressed in forthcoming studies include:

- How does competition among hospitals influence costs, case mix, length of stay, and surgical rates?
- Why do length of stay and use of ancillary services vary across hospitals and over time, both overall and for specific diseases?
- Why do rates of specific surgical procedures, such as cesarean sections and coronary artery bypass, vary across hospitals?
- Do hospitals shift unreimbursed costs of patients covered by Medicare and Medicaid to patients covered by private insurance?
- Do procedures, services and diagnoses vary across specific groups of patients?
- To what degree does medical staff specialization affect the mix and length of stay of hospital patients?
- Do larger hospitals treat different types of patients and have lower costs per patient for specific diagnoses than smaller hospitals?

Data base

Nearly 400 of the more than 5,500 short-term, general, non-Federal hospitals in the United States are included in the Hospital Cost and Utilization Project. These hospitals were selected according to scientific sampling procedures to represent the range of factors influencing hospital behavior, utilization, and costs. Participation in the study was voluntary, but hospitals with incomplete discharge abstract data files, in terms either of information or period of coverage, were not included in the sample.

Data were acquired from a number of published and unpublished sources. Information on patient clinical status and use of inpatient services was obtained from hospital discharge abstracts provided by 12 major discharge abstract services. Patient data cover more than 20 million discharges from 1970 through 1977 for national sample hospitals. NCHSR is now collecting similar data for 1980 through 1984, and will eventually obtain information through 1987.

Information on characteristics of each hospital was obtained from the American Hospital Association's Annual Survey of Hospitals, various Special Surveys conducted by the American Hospital Association, and each hospital's annual Medicare Cost Report. Data on medical staff characteristics of a subsample of hospitals were obtained from the American Medical Association's Masterfile of U.S. Physicians. Characteristics of the community in which each hospital is located were obtained from the Area Resource File, compiled by the Bureau of Health Professions, Health Resources and Services Administration, U.S. Department of Health and Human Services.

The HCUP data files represent a unique linkage of hospital, patient, physician, and community information for a large sample of hospitals from 1970 to 1977. The data base, augmented with information for the 1980s, will permit comprehensive assessment of factors affecting patterns of hospital use and costs.

Data files for HCUP were constructed under the technical direction of NCHSR by SysteMetrics, Inc., of Santa Barbara, California (funded by contract OASH 233-78-3001), and by Mandex, Inc., of Vienna, Virginia (funded by contract OASH 233-81-3030).

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Use of Short-term General Hospitals by Patients with Psychiatric Diagnoses

Jacqueline Wallen

One of the most important changes in the delivery of psychiatric inpatient care in the past several decades has been an expansion of the role played by short-term general hospitals (Taube *et al.*, 1978; Kiesler, 1982). Short-term general hospitals, rather than psychiatric hospitals, are now the most likely place for hospitalization for a mental disorder (Kiesler, 1982; Kiesler and Sibulkin, 1983).

A reliance on community hospitals for the inpatient treatment of acute psychiatric episodes can substantially improve access to care for patients who require such hospitalization. At the same time, there is concern that short-term hospitals, particularly those without psychiatric inpatient units, may not be equipped to provide appropriate care for patients with psychiatric disorders (Keill, 1981). Less than one-quarter of all short-term general hospitals have a psychiatric unit (Redick and Witkin, 1981). Little research has been done on services received by patients with psychiatric disorders in these hospitals.

Another change that has affected the use of psychiatric care is the increased coverage of inpatient care for acute psychiatric episodes by Blue Cross and many commercial insurers. This has made psychiatric care in a private short-term hospital possible for many patients who could not have afforded a private mental hospital but would not have entered a public one (Glasscote *et al.*, 1983). While changes in coverage have made inpatient care more accessible to privately insured patients with psychiatric disorders, public sector resources available to patients without private insurance have diminished (Goldman *et al.*, 1984). Public hospitals have historically been perceived as treating the most disabled patients and have been credited with backing up private hospitals by accepting their indigent emergency admissions as transfers (Richardson, 1980; Bachrach, 1981). The implementation of the new Medicare Prospective Payment System (PPS) may encourage short-term private hospitals to steer more of their less profitable patients to short-term public hospitals (Widem *et al.*, 1984). In spite of the key role of short-term public general hospitals in guaranteeing access to care for psychiatric patients in their own community, little information is available on psychiatric case mix or the kind of psychiatric services rendered by these hospitals (Bachrach, 1981; Richardson, 1980).

Another area which has received little research attention is the hospitalization experience of patients who have secondary but not principal psychiatric diagnoses (Kiesler, 1982; McKegney and Beckhardt, 1982; Craig, 1982).[1] These are patients who are admitted because of a somatic illness but are also diagnosed as suffering from a psychiatric disorder. Because these patients are generally in medical or surgical beds and only a small proportion of them see a psychiatrist during their hospital stay (Craig, 1982), they receive little discussion in the literature on the treatment of psychiatric illnesses in short-term general hospitals.

The purpose of this paper is to provide information on the use of short-term general hospitals by patients with psychiatric diagnoses. The analysis is based on data from a national sample of hos-

1. *Principal diagnosis* refers to the condition that was considered, upon discharge, to have been the reason the patient was admitted to the hospital. *Secondary psychiatric diagnosis* refers to the first-listed accompanying psychiatric diagnosis when the principal diagnosis is somatic, or non-psychiatric.

Table 1. Psychiatric units and patients in short-term general hospitals, by hospital characteristics (HCUP Hospital and Patient Sample, 1977).

	Percent of hospitals with psychiatric inpatient unit	Percent of patients with psychiatric principal diagnosis	Number of hospitals
All hospitals	23.0	3.1	327[a]
Hospital type			
Public	26.6	3.8	64
Voluntary	28.3*	3.0	235
Investor owned	21.7	1.5*	23
Hospital size			
Less than 200 beds	12.3	3.0	154
200 or more beds	56.1*	3.2	173
Medical school affiliation			
Without	22.5	2.9	200
With	55.9*	3.6	125
Location			
Rural (non-SMSA)	12.0	3.0	108
Urban (SMSA)	47.0*	3.2	217
Psychiatric inpatient unit			
Without	—	2.1	213
With	—	5.1*	114

[a] Information on teaching status and location was missing for two hospitals and information on hospital type was missing for 5 hospitals. * Indicates a statistically significant difference at the .05 level using a standard two-tailed t-test. Where a variable had more than two values, each value was treated as a dummy variable for the purpose of the t-test (e.g. public hospitals vs. all other hospitals).
Source: National Center for Health Services Research and Health Care Technology Assesment. Hospital Studies Program.

pitals and data on patients discharged from these hospitals. The study explores differences among hospitals in the psychiatric services provided and the length of stay and discharge destination of patients with psychiatric diagnoses in order to answer the following questions:

- Do hospitals with psychiatric units differ from other hospitals in terms of the kinds of psychiatric patients they treat, the way in which they treat those patients, or the extent to which they diagnose and treat secondary psychiatric conditions in patients who are hospitalized for some other, nonpsychiatric condition?
- How do patients in public hospitals differ from patients in private hospitals with respect to their psychiatric diagnoses and the kinds of treatment they receive?
- What kinds of hospitals are most likely to discharge psychiatric patients to other facilities and what are the characteristics of such patients?

All of these questions relate to the problem of access to psychiatric care for hospitalized patients with psychiatric disorders.

Study description

This report describes the hospital experience of patients with psychiatric diagnoses in a national sample of short-term general, non-Federal, hospitals. The analyses are based on data compiled by the Hospital Cost and Utilization Project (HCUP), part of the Hospital Studies Program of the National Center for Health Services Research and Health Care Technology Assessment. Data sources include:

- The 1977 American Hospital Association's Annual Survey of Hospitals data for a national sample of 327 short-term general, non-Federal hospitals in the United States.
- Discharge abstract data for 1977 on a 10 percent sample of patients from the 327 hospitals (roughly 400,000 patients, approximately 25,000 of whom have either a primary or a secondary psychiatric diagnosis).

The data are linked so that patient and hospital characteristics can be examined in relation to each other.[2]

Psychiatric inpatient units and psychiatric admissions

Table 1 shows that 23 percent of the hospitals in the HCUP national sample have psychiatric inpatient units as broadly defined in the AHA hospital survey. This definition requires that there be a "specific section, ward, wing, floor, or building devoted primarily to the care of psychiatric inpatients." This figure is fairly close to the national average. Approximately 19 percent of all hospitals surveyed by the AHA in 1977 have psychiatric inpatient units.[3]

Slightly more than 3 percent of the patients admitted to sample hospitals are given a principal diagnosis of psychiatric disorder.[4] This proportion remains relatively constant across hospital types with two exceptions. First, investor-owned, or proprietary, hospitals have significantly fewer patients with primary psychiatric diagnoses than other hospitals. These hospitals are also less likely than other hospitals to have a psychiatric unit, but the difference is not statistically significant. Second, compared with hospitals that do not have psychiatric units, hospitals with psychiatric units have more than twice as many patients with psychiatric principal diagnoses.[5] Otherwise, hospitals do not differ greatly from one another with respect to the proportion of their patients who received a psychiatric principal diagnosis. The likelihood of having a psychiatric inpatient unit, however, varies widely. Hospital size, teaching status, and urban location are all positively associated with the presence of a psychiatric unit. Voluntary, or private nonprofit, hospitals are also more likely than other hospitals to have a unit.

2. Additional information on the data base is provided in the Sources and Limitations of the Data and the Technical Notes sections.

3. See Table 10 in the Technical Notes for further sample-universe comparisons.

4. As defined by the second edition of the H-ICDA in the section on Mental Disorders, which includes codes 290-318 (Commission on Professional and Hospital Activities, 1973).

5. The data do not indicate which patients in hospitals with psychiatric units actually received care in that unit. Some of them were undoubtedly in regular medical and surgical beds.

Table 2. Percent distribution of patients with a psychiatric principal diagnosis, by diagnosis and presence of a psychiatric inpatient unit (HCUP Hospital and Patient Sample, 1977).

	Number of cases	Percent distribution for hospitals without unit (n=3122)	Percent distribution for hospitals with unit (n=8386)	Percent distribution for all hospitals
Organic brain syndrome, psychotic and nonpsychotic (296-301, 304-305)[a]	729	9.1*	5.3*	6.3
Alcoholism and related disorders (302, 313)	2461	29.6*	17.9*	21.2
Drug addiction and related disorders (303, 314)	387	2.2*	3.8*	3.4
Psychoses, nonorganic (306-309)	3024	13.7*	31.5*	26.3
Neuroses (310)	3425	29.7	30.3	29.8
Personality disorders (311)	293	.8*	3.3*	2.6
Sexual deviation (312)	27	—	—	.2
Psychophysiological disorders (315)	262	4.5*	1.4*	2.3
Special symptoms (316)	370	5.1*	2.5*	3.2
Transient situational disturbances (317)	390	2.7	3.7	3.4
Behavioral disturbances, childhood/adolescence (318)	51	.1	—	.4
Mental retardation (290-295)	64	.6	.5	.6

[a] Numbers in parentheses are H-ICDA-2 codes (see Commission on Professional and Hospital Activities). Comparable categorization was carried out for hospitals that used the ICDA-8 codes. *Indicates a difference between hospitals with and without psychiatric units that is statistically significant at the .05 level using a standard two-tailed t-test. Dashed line indicates less than .1 percent.
Source: National Center for Health Services Research and Health Care Technology Assesment. Hospital Studies Program.

Comparison of patients in hospitals with and without psychiatric units

Table 2 groups patients with psychiatric principal diagnoses according to their principal diagnosis. Neuroses, psychoses and alcoholism, in descending order of frequency, are the major reasons for psychiatric admissions to sample hospitals. The table also compares the patient mix of hospitals with and without psychiatric units. While the two kinds of hospitals have similar proportions of patients with a principal diagnosis of neurosis, hospitals with psychiatric units have a substantially greater proportion of patients with a principal diagnosis of psychosis. This distribution is inherently logical, since psychoses are considered by psychiatrists to be the more severe of the two.

Hospitals without psychiatric inpatient units report a larger proportion of patients with alcoholism and organic brain syndrome diagnoses than hospitals with such units. (Organic brain syndrome refers to a mental disorder that is produced by structural changes in the brain itself.) Hospitals without psychiatric inpatient units also report a larger proportion of patients with psychophysiological disorders and disorders in the category of "special symptoms." (These include psychosomatic illnesses and physical disturbances such as sleep, speech, or eating disorders.) Hospitals with psychiatric units are more likely to report cases of drug addiction.

In Table 3, psychiatric patients are grouped into several larger categories of mental disorder (organic brain syndrome, substance abuse, psychoses, neuroses, and other disorders) in order to provide uniformly high numbers of cases for the analysis of differences between hospitals with and without psychiatric units. A separate analysis of the entire 10 percent sample of patients in HCUP hospitals (not reported in Table 3) showed that the average stay for all patients in the national sample of hospitals is 7.3 days. Table 3 shows that in hospitals without psychiatric units the average stay for patients with psychiatric principal diagnoses is 7.4 days, which is very close to that figure. The average stay for psychiatric patients in hospitals with psychiatric units, however, is almost twice as long, or 14 days. This difference may partly reflect differences in types of diagnoses treated, but significant differences in length of stay also occur within particular diagnostic groupings.

Table 3 also shows that hospitals without psychiatric inpatient units discharge signficantly more of their psychiatric patients to other facilities. Their rates of discharge to other facilities are particularly high for patients with psychoses. The data do not permit determination of the type of facility to which patients are discharged, but the fact that rates are particularly high for psychotic patients suggests that a number of severely ill patients are being transferred to psychiatric hospitals. A separate analysis was carried out to determine whether length of stay differences between hospitals with and without psychiatric units are partially caused by differences in rates of discharge to other facilities. This proved not to be the case. Patients discharged to other facilities actually have longer stays than other patients, and significant differences in length of stay between hospitals with and without units persisted even when these patients were excluded from the calculations.

Treatment patterns may be another factor influencing length of stay differences. The data do not provide information on whether patients receive medication for their psychiatric condition or whether the patient's physician is a psychiatrist. They do shed light on the nature of some of the psychiatric or social services and procedures that patients receive. The services and procedures for which data are available are: psychotherapy (a method of treatment which relies on communication between the patient and the psychiatrist or other therapist), shock therapy (either electroshock or drug shock), and other types of rehabilitation therapy (*e.g.* recreation, manual arts and occupational therapy). Table 3 shows that in hospitals with psychiatric units, approximately 26 percent of patients with psychiatric principal diagnoses receive at least one of these services, compared to only about 11 percent in hospitals without units. When they do receive some form of psychiatric or social service, patients in hospitals without psychiatric units average only one such service. In hospitals with psychiatric units, patients who receive at least one service average 1.3 services. Rehabilitation therapy in hospitals with psychiatric units is the most frequently provided type of therapy for all disorders, except for cases of substance abuse, for which psychotherapy is used for a higher

Table 3. Use of services by patients with psychiatric principal diagnoses in short-term general hospitals, by type of diagnosis and presence of psychiatric inpatient unit (HCUP Hospital and Patient Sample, 1977).

	Organic brain syndrome (296-301, 304-305)[a]		Substance abuse (302, 303,313, 314)		Psychoses (306-309)	
	Without unit	With unit	Without unit	With unit	Without unit	With unit
Length of stay (in days)						
	13.4*	16.1*	8.4*	11.3*	8.2*	18.1*
Percent discharged to another facility						
	32.0*	24.5*	4.6	4.8	28.6*	8.5*
Percent of patients receiving service						
Psychotherapy (97.5)	0.0*	3.4*	0.0*	4.5*	0.0*	13.9*
Shock therapy (97.3, 97.4)	0.0	.1	0.0	.1	1.1*	7.6*
Rehabilitation therapy (97.7)	.1	6.2*	.7	3.4	2.3*	16.5*
Psychiatric consultation	10.9	11.6	8.1	7.2	16.9*	6.7*
Percent receiving at least one of these services						
	8.5*	17.8*	7.0*	12.9*	16.2*	32.7*
Number of services received by patients with at least one service (mean)						
	1.0	1.1	1.0	1.1	1.1*	1.3*
Number of patients						
	284	445	993	1855	428	2596

percent of the patients, but still in less than 5 percent of the cases. Hospitals without psychiatric units, however, are unlikely to provide rehabilitation therapy.

None of the patients with psychiatric principal diagnoses in hospitals without psychiatric inpatient units has a record of receiving psychotherapy during the hospital stay. Even in hospitals with psychiatric units, only 10 percent of patients have such a record. This does not mean, however, that patients are not receiving treatment for their psychiatric disorders. Appropriate hospital treatment for an acute episode of psychiatric illness may involve psychotherapeutic drugs alone rather than psychotherapy. Furthermore, if the patient is in a psychiatric unit, or if the patient's physician is a psychiatrist, the patient will have had visits from a psychiatrist without receiving services specifically designated as psychotherapy. Also, the patient may be in a psychiatric unit receiving care from psychiatric nurses.

Shock therapy is the least frequently employed of the services and procedures studied. In hospitals with psychiatric units, it is used for 7.6 percent of the patients with a primary diagnosis of psychosis and 3.7 percent of the patients with a primary diagnosis of neurosis.

Data on psychiatric consultations are also available. A psychiatric consultation is a visit from a psychiatrist who is not the patient's own physician, generally for the purpose of evaluating the

Table 3 continued

	Neuroses (310)		Other psychiatric disorders (290-295, 311, 312, 315-318)		Total patients	
	Without unit	With unit	Without unit	With unit	Without unit	With unit
Length of stay (in days)						
	5.2*	13.0*	5.2*	11.2*	7.4*	14.0*
Percent discharged to another facility						
	5.1*	1.5*	4.9	4.4	10.6*	6.0*
Percent of patients receiving service						
Psychotherapy (97.5)	0.0*	12.0*	0.0*	8.2*	0.0*	10.0*
Shock therapy (97.3, 97.4)	.1*	3.7*	.0	.7	.2*	3.7
Rehabilitation therapy (97.7)	1.6*	14.6*	1.6*	9.0*	1.4*	11.7*
Psychiatric consultation	17.8*	11.6*	10.1	10.9	12.5*	9.2*
Percent receiving at least one of these services						
	14.4*	32.4*	9.2*	21.6*	10.8*	26.4*
Number of services received by patients with at least one service (mean)						
	1.0*	1.2*	1.0*	1.2*	1.0*	1.3*
Number of patients						
	927	2498	490	992	3122	8386

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates a difference between hospitals with and without psychiatric units that is statistically significant at the .05 level, using a standard two-tailed t-test.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

patient and making a recommendation to the patient's physician. Although these data do not include information on physicians, patients in hospitals with psychiatric units are probably less likely than patients in hospitals without units to require a psychiatric consultation because they are more likely already to be under the care of a psychiatrist. A psychiatric consultation is most probable when a patient is in a hospital without a psychiatric unit and is given a principal diagnosis of psychosis—27.4 percent of such patients receive a psychiatric consultation.

Table 4 presents information on the psychiatric diagnoses of patients who are admitted to the hospital for a somatic illness, but who also receive a psychiatric diagnosis. The table compares hospitals with and without psychiatric inpatient units and shows very little difference either in the frequency or the distribution of secondary psychiatric diagnoses, except that hospitals without units have a slightly higher proportion of patients with a secondary diagnosis of organic brain syndrome, while hospitals with units have slightly more patients with a secondary diagnosis of alcoholism. Hospitals with psychiatric units also have somewhat more patients with a secondary diagnosis of personality disorder, but relatively few patients fall into this category in either setting. In hospitals without psychiatric units, 3.7 percent of all patients receive a secondary psychiatric diagnosis, while in hospitals with units, 3.8 percent re-

Table 4. Percent distribution of patients with a somatic principal diagnosis and a secondary psychiatric diagnosis, by first-listed psychiatric diagnosis and presence of a psychiatric unit (HCUP Hospital and Patient Sample, 1977).

	Number of cases	Percent distribution for hospitals without unit (n=6561)	Percent distribution for hospitals with unit (n=6991)	Percent distribution for all hospitals
Organic brain syndrome, psychotic and nonpsychotic (296-301, 304-305)[a]	2560	20.9*	16.9*	18.9
Alcoholism and related disorders (302, 313)	2301	15.0*	18.8*	16.9
Drug addiction and related disorders (303, 314)	408	3.0	3.1	2.9
Psychoses, nonorganic (306-309)	906	6.5	6.9	6.7
Neuroses (310)	5544	41.7	40.1	41.0
Personality disorders (311)	274	1.5*	2.5*	2.0
Sexual deviation (312)	5	—	—	—
Psychophysiological disorders (315)	256	2.0	1.8	1.9
Special symptoms (316)	483	3.9	3.3	3.6
Transient situational disturbances (317)	268	1.9	2.1	2.0
Behavioral disturbances, childhood/ adolescence (318)	52	.3	.5	.4
Mental retardation (290-295)	495	3.3	4.0	3.7
Patients with psychiatric secondary diagnosis only, as a percent of all patients in hospital	—	3.7	3.8	3.8

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates that the difference between hospitals with and without psychiatric units is significant at the .05 level using a standard two-tailed t-test. Dashed line indicates not applicable or less than .1 percent.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

ceive them. In some respects, these similarities are to be expected. In contrast to the patients in Table 3, who are admitted because of a psychiatric illness, patients with secondary psychiatric diagnoses do not enter the hospital for psychiatric care. There is no reason to assume that patients with secondary psychiatric diagnoses are more likely to enter a hospital with a psychiatric unit. From a different perspective, however, the similarities are surprising. Because the diagnostic capabilities of hospitals with psychiatric units should be superior to those of other hospitals, more secondary psychiatric disorders could be diagnosed in these hospitals. One possibility is that, in hospitals with psychiatric units, when a psychiatric illness is detected in a patient who entered the hospital for other reasons, this disorder has a higher probability of becoming the principal diagnosis than would be the case in hospitals without psychiatric units. These illnesses, therefore, could be reflected in the principal, rather than in the secondary diagnoses of patients in hospitals with psychiatric units.

It is clear that the experience of patients with secondary psychiatric diagnoses in hospitals with psychiatric units does differ somewhat from the experience of similar patients in hospitals without units, but the difference is much less pronounced than the differ-

ence observed earlier for patients with psychiatric principal diagnoses. As Table 5 shows, patients with secondary psychiatric diagnoses have somewhat longer stays in hospitals with psychiatric units and they are more likely to receive a psychiatric consultation in these hospitals. Figures on other types of psychiatric or social services are not included because virtually none of the patients with a secondary psychiatric diagnosis in either setting receives any of these services. Like patients with psychiatric principal diagnoses, patients with secondary psychiatric diagnoses also are more likely to be discharged to another facility if they are in a hospital without a psychiatric inpatient unit.

Comparison of public and private hospitals

Table 6 compares the psychiatric diagnoses of patients in public and private hospitals. In this table and tables that follow, private nonprofit and private for-profit hospitals are combined in the category "private." (See the Technical Notes for a more detailed discussion of definitions.)

The table shows a number of statistically significant differences between private and public hospitals in the distribution of psychiatric principal diagnoses. Patients in private hospitals are more likely to be admitted for organic brain syndrome or neurosis, while patients in public hospitals are more likely to be hospitalized for a psychosis, alcoholism or drug addiction.

It is not clear exactly why more patients are diagnosed as suffering from organic brain syndrome in private hospitals. There may be a higher incidence of organic brain syndrome in private hospital patients because of differences in the age distribution of public hospital and private hospital patients. The average age of patients in the public hospitals studied is 34.9, while the average age of patients in the private hospitals studied is 40.1. It is possible, however, that private hospitals are more likely to detect existing organic brain conditions than public hospitals.

Table 7 examines characteristics of patients' hospital stays in public and private hospitals using the broader diagnostic groupings discussed in the previous section. This table shows that the hospital stays of patients with a psychiatric principal diagnosis are significantly shorter in public than in private hospitals, even though Table 6 suggests that the case mix may be somewhat more severe in public hospitals. Compared to private hospitals, public hospitals are more likely to discharge patients to other facilities, particularly psychotic patients. The data do not permit determination of the type of facility to which these patients were discharged, but the data do suggest a certain amount of overflow of more seriously ill psychiatric patients to other facilities.

Public and private hospitals also differ in the services they provide to patients with psychiatric principal diagnoses. In private hospitals, approximately 25 percent of these patients receive at least one of the social or psychiatric services recorded in the discharge abstract. For public hospitals, the figure is slightly less than

Table 5. Use of short-term general hospitals by patients with a somatic principal diagnosis, by type of secondary psychiatric diagnosis and presence of a psychiatric unit (HCUP Hospital and Patient Sample, 1977).

	Organic brain syndrome (296-301, 304-305)[a]		Substance abuse (302, 303, 313, 314)		Psychoses (306-309)	
	Without unit	With unit	Without unit	With unit	Without unit	With unit
Length of stay (in days)	16.0	16.0	8.8*	10.9*	11.3*	13.2*
Percent discharged to another facility	36.9*	31.4*	6.5	7.9	26.6*	18.4*
Percent receiving a psychiatric consultation	5.0	6.9	5.2*	7.5*	18.5*	27.4*
Number of patients	1371	1189	1181	1528	426	480

9 percent. The difference between services provided in private and public hospitals is particularly striking for psychotherapy and rehabilitation therapy. In private hospitals, 8.7 percent of patients with psychiatric principal diagnoses receive psychotherapy and 10.5 percent receive some form of rehabilitation therapy.[6] In public hospitals, 0.7 percent receive psychotherapy and 1.6 percent receive some form of rehabilitation therapy. The difference also is great for shock therapy (3.3 percent in private hospitals and 0.2 percent in public hospitals), but relatively few patients receive shock therapy in either setting. Although the difference is still statistically significant, public hospitals resemble private hospitals more closely with respect to the provision of psychiatric consultations. In private hospitals 10.5 percent of patients with primary psychiatric diagnoses receive psychiatric consultations, while in public hospitals such consultations are received by 8.1 percent. When patients in private hospitals receive some form of social or psychiatric service, they tend to average slightly more services than patients in public hospitals. An analysis (not shown in Table 7) was carried out to determine whether any of the differences between public and private hospitals are accounted for by the fact that proportionately fewer of the public hospitals have psychiatric units. Significant differences between public and private hospitals in discharges to other facilities and in other aspects of patient treatment persist after controlling for the presence or absence of an inpatient psychiatric unit.

Table 8 shows a difference between public and private hospitals in the frequency of secondary psychiatric diagnoses for patients admitted for a somatic illness. In private hospitals, 3.5 percent of all patients are diagnosed as suffering from a secondary psychiatric disorder, while in public hospitals 5.1 percent receive such a diagnosis. The distribution of secondary psychiatric diagnoses also differs in the two settings. When patients in public hospitals re-

6. These figures may underestimate the amount of psychotherapy provided in public hospitals because psychiatrists may be on a salary in these hospitals. Since they do not bill for psychotherapy, they may be less likely to enter it on the patient's record.

Table 5 continued

	Neuroses (310)		Other psychiatric disorders 290-295, 311, 312, 315-318)		Total patients	
	Without unit	With unit	Without unit	With unit	Without unit	With unit
Length of stay (in days)	8.1*	9.1*	8.4*	7.9	10.1*	10.8*
Percent discharged to another facility	4.9*	2.7*	10.2	9.1	14.1*	10.7*
Percent receiving a psychiatric consultation	11.1*	16.7*	9.2*	14.9*	9.1*	13.5*
Number of patients	2736	2808	847	986	6561	6991

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates a difference between hospitals with and without psychiatric units that is significant at the .05 level using a standard two-tailed t-test.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

Table 6. Percent distribution of patients with a psychiatric principal diagnosis, by primary diagnosis and type of hospital ownership (HCUP Hospital and Patient Sample, 1977).

	Number of cases	Percent distribution for private hospitals (N=9279)	Percent distribution for public hospitals (n=2229)	Percent distribution for all hospitals
Organic brain syndrome, psychotic and nonpsychotic (296-301, 304-305)[a]	729	6.6*	4.9*	6.3
Alcoholism and related disorders (302, 313)	2461	20.6*	23.2*	21.2
Drug addiction and related disorders (303, 314)	387	2.9*	5.1*	3.4
Psychoses, nonorganic (306-309)	3024	25.7*	30.2*	26.3
Neuroses (310)	3425	31.6*	23.0*	29.8
Personality disorders (311)	293	2.5*	3.0*	2.6
Sexual deviation (312)	27	.3	—	.2
Psychophysiological disorders (315)	262	2.3	1.8	2.3
Special symptoms (316)	370	3.4	2.7	3.2
Transient situational disturbances (317)	390	3.3*	4.4*	3.4
Behavioral disturbances, childhood/ adolescence (318)	51	.4*	.8*	.4
Mental retardation (290-295)	64	.4*	.9*	.6

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates that the difference between public and private hospitals is significant at or beyond the .05 level using a standard two-tailed t-test. Dashed line indicates not applicable or less than .1 percent.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

Table 7. Use of short-term general hospitals by patients with a psychiatric principal diagnosis, by type of psychiatric diagnosis and type of hospital ownership (HCUP Hospital and Patient Sample, 1977).

	Organic brain syndrome (296-301, 304-305)[a]		Substance abuse (302, 303,313, 314)		Psychoses (306-309)	
	Private	Public	Private	Public	Private	Public
Length of stay (in days)						
	15.0	14.7	10.9*	7.9*	17.9*	12.2*
Percent discharged to another facility						
	25.3*	38.9*	4.4	6.1	8.2*	22.8*
Percent of patients receiving service						
Psychotherapy (97.5)	2.4	0.0	3.6*	0.0*	14.8*	1.5*
Shock therapy (97.3, 97.4)	.6	0.0	.1	0.0	8.4*	.4*
Rehabilitation therapy (97.7)	4.8	0.0	2.8*	1.0*	17.6*	3.0*
Psychiatric consultation	11.9	7.9	7.5	7.6	8.4	7.4
Percent receiving at least one of these services						
	15.5*	6.2*	11.5*	7.8*	35.9*	10.2*
Number of services for patients receiving one or more services (mean)						
	1.1	1.0	1.1	1.0	1.3*	1.0*
Number of patients						
	612	117	2181	667	2385	639

ceive a secondary psychiatric diagnosis, they are more likely to receive a diagnosis of alcoholism or drug addiction than are patients in private hospitals. Patients with secondary psychiatric diagnoses in private hospitals are more likely to receive a diagnosis of organic brain syndrome or neurosis than are patients in public hospitals. This parallels the distribution of psychiatric principal diagnoses in public and private hospitals. With respect to treatment patterns, Table 9 shows that patients with secondary psychiatric diagnoses in public hospitals have somewhat shorter stays but the difference between public and private hospitals is not statistically significant, except for patients with psychoses. Public hospitals also discharge more of their patients with secondary psychiatric diagnoses to other institutions and are significantly less likely to provide psychiatric consultations for these patients. This difference occurs whether or not the hospital has a psychiatric unit.

Conclusions

Slightly fewer than one-quarter of the hospitals in the sample have psychiatric units. The mix of psychiatric patients in hospitals with psychiatric units differs substantially from the patient mix in other hospitals. In particular, these hospitals have significantly more psychotic patients. Patients with psychiatric principal diagnoses in hospitals with psychiatric units have significantly longer

Table 7 continued

	Neuroses (310)		Other psychiatric disorders (290-295, 311, 312, 315-318)		Total patients	
	Private	Public	Private	Public	Private	Public
Length of stay (in days)						
	11.4*	7.7*	9.4	8.1	12.7*	9.5*
Percent discharged to another facility						
	2.1*	4.8*	3.2*	9.7*	5.9*	13.0*
Percent of patients receiving service						
Psychotherapy (97.5)	10.1*	.4*	6.7*	.9*	8.7*	.7*
Shock therapy (97.3, 97.4)	3.1*	.2*	.5	.3	3.3*	.2*
Rehabilitation therapy (97.7)	12.6*	1.2*	7.9*	12.9*	10.5*	1.6*
Psychiatric consultation	13.6	10.5	11.1	8.8	10.5*	8.1*
Percent receiving at least one of these services						
	30.5*	9.6*	19.8*	8.1*	25.1*	8.7*
Number of services for patients receiving one or more services (mean)						
	1.2*	1.0*	1.2	1.0	1.2*	1.0*
Number of patients						
	2932	493	1169	310	9279	2229

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates a difference between private and public hospitals that is statistically significant at the .05 level using a standard two-tailed t-test.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

hospital stays and receive significantly more psychiatric and social services than patients in hospitals without units. They also are less likely to be discharged to another institution. Still, only 10 percent of the patients with psychiatric principal diagnoses in hospitals with psychiatric inpatient units receive psychotherapy while in the hospital, and close to three-quarters have no record of any social or psychiatric services.

Hospitals with psychiatric units do not differ from other hospitals in the relative frequency with which they assign secondary psychiatric diagnoses to patients who enter the hospital for somatic illnesses, even though they presumably differ in the resources they have available for diagnosing such disorders. Perhaps patients with a somatic illness and an accompanying psychiatric disorder are more apt to be given a psychiatric principal diagnosis in these hospitals, although this cannot be examined with the data. Hospitals with psychiatric units are significantly more likely to provide psychiatric consultations for patients with secondary psychiatric diagnoses.

A comparison of private and public hospitals reinforces the belief that public hospitals have a somewhat more seriously ill psychiatric case load. Private hospitals have more patients with a primary diagnosis of neurosis than with a primary diagnosis of psychosis, while this relationship is reversed for public hospitals. Psychiatric consultations are received by approximately 8 percent of the patients

Table 8. Percent distribution of patients with a somatic principal diagnosis and a secondary psychiatric diagnosis, by first-listed psychiatric diagnosis and type of hospital ownership (HCUP Hospital and Patient Sample, 1977).

	Number of cases	Percent distribution for private hospitals (n=10,869)	Percent distribution for public hospitals (n=2683)	Percent distribution for all hospitals
Organic brain syndrome, psychotic and nonpsychotic (296-301, 304-305)[a]	2560	19.7*	14.5*	18.9
Alcoholism and related disorders (302, 313)	2301	14.3*	27.9*	16.9
Drug addiction and related disorders (303, 314)	408	2.7*	4.1*	2.9
Psychoses, nonorganic (306-309)	906	6.4*	7.8*	6.7
Neuroses (310)	5544	43.7*	30.4*	41.0
Personality disorders (311)	274	1.8*	2.8*	2.0
Sexual deviation (312)	5	—	—	—
Psychophysiological disorders (315)	256	2.1	1.2	1.9
Special symptoms (316)	483	3.7	3.2	3.6
Transient situational disturbances (317)	268	1.7*	3.1*	2.0
Behavioral disturbances, childhood/ adolescence (318)	52	.4	.2	.4
Mental retardation (290-295)	495	3.4*	4.7*	3.7
Patients with a secondary psychiatric diagnosis, as a percent of all patients in hospital	—	3.5*	5.1*	3.8

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates that the difference between public and private hospitals is significant at or beyond the .05 level using a standard two-tailed t-test. Dashed line indicates data not applicable or number of cases for one or both hospital types was less than 10.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

Table 9. Use of short-term general hospitals by patients with a somatic principal diagnosis and a secondary psychiatric diagnosis, by secondary diagnosis and type of hospital ownership (HCUP Hospital and Patient Sample, 1977).

	Organic brain syndrome (296-301, 304-305)[a]		Substance abuse (302, 303, 313, 314)		Psychoses (306-309)	
	Private	Public	Private	Public	Private	Public
Length of stay (in days)	16.0	15.9	10.1	9.7	12.9*	10.3*
Percent discharged to another facility	33.1*	41.9*	6.1*	9.7*	19.9*	30.1*
Percent of patients receiving a psychiatric consultation	6.1	5.5	7.0	5.5	26.1*	16.2*
Number of patients	2141	419	1956	753	696	210

in public hospitals but otherwise they appear to receive very few of the psychiatric and social services for which we have information. Psychiatric patients in public hospitals, particularly psychotic patients, are far more likely than patients in private hospitals to be discharged to other facilities.

The data also show that patients with somatic principal diagnoses in public hospitals are more likely than similar patients in private hospitals to be diagnosed as suffering from an accompanying psychiatric disorder. The presence of a psychiatric illness in a patient hospitalized for another reason can have an adverse effect on outcome and can increase both length of stay and overall resource consumption (McKegney and Beckhardt, 1982). In spite of this, these patients have slightly shorter stays and consume fewer resources than patients in private hospitals.

There is reason to be concerned about some of the case-mix differences between private and public hospitals. To the extent that these differences result from private short-term general hospitals transferring patients who are particularly disabled or who will require lengthy stays, transfers to public hospitals might be expected to increase as hospitals intensify their cost-consciousness under increased reimbursement constraints of Medicare's new Prospective Payment System. At the same time, this study shows that public short-term general hospitals also do some of their own transferring of potentially costly patients. State psychiatric hospitals provide a safety net for these patients. Incentives to transfer for financial reasons have the potential of creating a multi-tiered system of care for patients with psychiatric disorders and could detract from the ability of the public sector to provide access to care for acute psychiatric episodes.

Table 9 continued

	Neuroses (310)		Other psychiatric disorders 290-295, 311, 312, 315-318)		Total patients	
	Private	Public	Private	Public	Private	Public
Length of stay (in days)	8.7	8.2	8.3	7.5	10.7	9.9
Percent discharged to another facility	3.6	5.1	7.9*	15.8*	11.5*	15.7*
Percent of patients receiving a psychiatric consultation	2.8	1.8	11.8	14.0	11.8*	10.4*
Number of patients	4750	794	1326	507	10,869	2683

[a]Numbers in parentheses are H-ICDA-2 codes. *Indicates a difference between public and private hospitals that is significant at the .05 level using a standard two-tailed t-test.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

Sources and limitations of the data

The hospitals studied represent a sample of U.S. short-term general, non-Federal hospitals (a universe of roughly 5,500 hospitals). Of an initial stratified random sample of 764 hospitals, 340 hospitals with adequate records agreed to participate in the study. Of these 340 hospitals, 327 had complete statistics for inclusion in the present study. Adequate records, for the purpose of inclusion in the HCUP sample, meant that the hospital subscribed to an abstracting service and could provide complete data from 1974 to 1976. Some bias may have been introduced due to nonresponse and the requirement that the hospital subscribe to a discharge abstracting service. This may have been balanced to some extent, however, by the fact that the sample was stratified so that hospitals with less likelihood of selection, because of certain characteristics that were considered to be of major analytic significance, were oversampled. These characteristics included small or large bed size. As a result, the sample represents the full size range of hospitals, and most hospital sample statistics are roughly similar to the AHA annual survey figures for the universe of hospitals (Coffey, 1983). The Technical Notes describe the sampling criteria and compare universe and sample estimates.

Technical notes

Sample universe comparisons

The HCUP sample was stratified to contain hospitals at all ranges of bed size, control, teaching status, region, rural/urban location, occupancy rate, and average length of stay, among other characteristics. This procedure maximizes the ability of the sample to reveal underlying relationships. However, for descriptive reports, representativeness of the sample must be considered. Table 10 compares characteristics of hospitals in the sample to those of all short-term general hospitals in the U.S., based on American Hospital Association data. The sample statistics differ from the universe estimates in several ways. Urban hospitals, voluntary hospitals, and teaching hospitals are overrepresented in the HCUP sample. As a result, the sample hospitals are, on average, larger than hospitals in the universe from which they were sampled. Sample hospitals with psychiatric units, especially, are far more likely to be teaching hospitals than universe hospitals with psychiatric units. With respect to such utilization-related characteristics as average occupancy rate and average length of stay, however, sample hospitals are similar to the universe of short-term general hospitals.

Sampling bias may have been introduced by the requirement that sample hospitals subscribe to an abstracting service and have available a complete time series of data from 1974 to 1976. It can be seen from Table 10, however, that when hospitals are compared to other hospitals that are similar with respect to ownership/control and presence of a psychiatric inpatient unit, the seriousness of this bias is not great, although large hospitals and teaching hospitals are still overrepresented among the private hospitals in our sample.

Definitions

Hospital control refers to the type of organization responsible for setting overall policies of the hospital. Public general hospitals are hospitals whose overall operating policies are set mainly by officials of counties, municipalities, and a few states. Voluntary hospitals, whether nonprofit or for-profit, differ in that their policies are set by a private board of directors or trustees. This study excludes Federal hospitals and special care hospitals.

Definitions of **hospital location** in this study are Standard Metropolitan Statistical Areas (SMSAs) and areas outside SMSAs, as defined by the U.S. Office of Management and Budget (1975). SMSAs are generally highly populated urbanized areas, but smaller counties that are contiguous to SMSAs and supply labor to the central counties of the SMSA or satisfy other population criteria are also included. Non-SMSAs are all other counties. In this report, urban and rural are used as synonyms for SMSA and non-SMSA, respectively.

Table 10. Selected characteristics of short-term general hospitals with and without psychiatric inpatient units, by type of hospital ownership, AHA hospital universe and HCUP Hospital and Patient Sample, 1977.[a]

	Public hospitals		Private hospitals	
	Without unit	With unit	Without unit	With unit
Percent of hospitals				
Universe	68.7	13.3	78.3	21.7
Sample	72.3	27.7	63.4	36.6
Percent urban (SMSA)				
Universe	20.0	68.5	53.4	79.6
Sample	23.4	88.9	63.6	89.0
Average number of beds				
Universe	81.8	357.9	140.5	364.1
Sample	114.9	395.6	205.4	436.4
Percent of hospitals with medical school affiliation				
Universe	2.8	46.0	6.9	38.1
Sample	12.8	77.8	29.5	59.0
Average occupancy rate				
Universe	59.1	70.0	66.2	75.4
Sample	62.6	72.7	71.0	78.2
Average length of stay				
Universe	7.4	7.9	7.5	8.1
Sample	7.8	7.8	7.4	7.1
Total assets per bed (in thousands)				
Universe	37.7	57.8	48.7	60.0
Sample	40.1	60.5	60.0	78.2
Number of hospitals				
Universe	1548	238	3104	863
Sample	47	17	163	95

[a]Universe statistics are from 1786 public and 3967 private short-term general, non-Federal hospitals. HCUP data are based on 112 public and private hospitals. Data on ownership/control type was missing for 5 of the 327 sample hospitals.
Source: National Center for Health Services Research and Health Care Technology Assessment. Hospital Studies Program.

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